

## **1-5 Statement of Work for Structures**

The attached Statement of Work for Structures, which pertains to the structures' portion of the work, highlights the project development phases, process requirements, associated deliverables, and various other requirements.

The conditions of the statement of work apply to consultant designed projects within the State Highway right-of-way, regardless of funding sources or construction contract administration responsibilities. All projects reviewed by OSFP shall meet these conditions. It is therefore imperative that consultant contracts initiated by a sponsoring agency include these conditions.

Editable electronic copies of the current Statement of Work for Structures can be obtained from the OSFP web site.

The OSFP Liaison Engineer will review the draft Statement of Work for Structures developed by the sponsoring agency for a specific project and will identify any necessary modifications. Sponsoring Agencies should request these reviews of the drafts as a routine step in the project development process.

The attached Statement of Work for Structures does not address special designs such as pumping plants, buildings, or tunnels with ventilation systems. These elements of a project will require additional lead time and deliverable items. The Liaison Engineer should be contacted for the appropriate wording to include in the Statement of Work for the specific project.

The numbers of copies of the various documents indicated in the deliverables of the Statement of Work for Structures should be considered as minimums for typical projects with concrete bridges or structures unless the Liaison Engineer provides other guidance. Additional copies will be required for projects with pumping plants, buildings, steel or railroad structures, and those projects that require additional distribution to Caltrans functional units, DES Specialists, external agencies, districts, and other entities. The exact number of copies to be shown in the specific contract Statement of Work for Structures should be determined only after coordination with the Liaison Engineer.

### Attachment

#### 1-5.1 Statement of Work for Structures

# Statement of Work for Structures

## I. GENERAL

The consultant has total responsibility for the accuracy and completeness of the plans and related designs, specifications, estimates, reports and such other documents that may be required for the project. Assistance, cooperation and oversight by Caltrans will not relieve the consultant of this professional responsibility.

The following definitions and terms as used in this Statement of Work for Structures shall have the meaning shown:

|                   |  |
|-------------------|--|
| Sponsoring Agency | the local agency or entity that is responsible for the contract with the consultant  |
| consultant        | either the private consulting firm or design entity that is responsible for the production of individual deliverables required in the various project development phases |
| District          | the California Department of Transportation District Office in whose jurisdiction the project resides  |
| DES               | California Department of Transportation, Division of Engineering Services  |
| OSFP              | California Department of Transportation, Division of Engineering Services, Office of Special Funded Projects   |

The structure design processes, including the design, plans, calculations, reports, Special Provisions, estimate and quality control, and deliverables shall conform to the *OSFP Information and Procedures Guide* and the requirements in this Statement of Work for Structures.

Deliverables shall be submitted for review and approval at stages specified in the milestone schedule and upon request. The identification, binding, sizes of prints and of media types for deliverables shall also conform to the *OSFP Information and Procedures Guide*.

### A. STRUCTURE DESIGN & PLANS

The structure design shall conform to the current edition of the Bridge Design Specifications (BDS) and updated design policies issued by Caltrans DES.

Contract Plans shall be prepared in accordance with the most current editions of applicable Caltrans manuals and other documentation.

Current Bridge Standard Details Sheets (XS-Sheets) and current Standard Plans shall be incorporated into the Contract Plans where applicable.

Each plan sheet shall bear the State of California Registered Professional Engineer registration seal with the signature, license number and registration certificate expiration date of the engineer who is in responsible charge for developing the plan.

Each plan sheet shall show the name and address of sponsoring agency and consultant in the blocks provided below the engineer's signature and registration stamp.

Each plan sheet shall show the name of the engineer who prepared the design.

A qualified engineer who is registered in the State of California shall independently check each design. Each plan sheet shall show the name of the engineer who performed the independent check.

The calculations for both the design and the independent design check shall be submitted as part of the PS&E Submittal. The respective calculations shall bear the State of California Registered Professional Engineer registration seal with the signature, license number and registration certificate expiration date of the design engineer and independent check engineer.

### B. PRELIMINARY STRUCTURE DESIGN

The roadway design consultant shall prepare the Bridge Site Data Submittal (BSDS) package for each structure on the project and submit them to the District for approval. After review and approval by the District, the roadway design

consultant shall furnish the structural design consultant a copy of the approved BSDS for each structure.

The consultant shall gather and verify needed data to begin structure design activities. The work involved will consist of the following:

- Review all existing conditions and requirements.
- Review the Project Study Report and/or Project Report.
- Review As-Built and Bridge Maintenance records, existing Foundation and Hydrology/Hydraulics Reports, utility information, and other pertinent project information.
- Conduct a field assessment to ensure that the structure Site Plan accurately represents existing conditions.
- Review and update existing Advance Planning Studies.
- Review the Bridge Site Data Submittal package, including attachments.
- Complete the Draft Foundation Plan Sheet.

Prior to starting design work, the structures design consultant should verify with the District that the geometric features necessary for the structure layout have received approval from the District.

### C. TYPE SELECTION REPORT AND MEETING

The culmination of preliminary design work will lead to the submittal and presentation for review and approval of a Type Selection Report for each structure.

This process shall be considered the “Structure Type Selection” process and no further design work shall be performed until written approval of the structure type is received from OSFP.

The Type Selection Report shall contain a General Plan, General Plan Estimate, Vicinity Map, Type Selection Memo, and Project Seismic Design Criteria. The Bridge Site Data Submittal with attachments, the Preliminary Foundation Report, and the Hydrology/Hydraulics Report (when appropriate) shall accompany the Type Selection Report. In the case of modifications or widening of existing structures, the Type Selection Report shall also include supporting documentation for potential seismic retrofit strategies and associated cost.

A Type Selection Review Meeting will be scheduled after the District has approved the project geometrics and a minimum of 2 weeks following receipt of an acceptable Type Selection Report. This meeting will be held in Sacramento. At the

meeting, the consultant shall present the proposed structure and shall briefly discuss pertinent issues. After the meeting, the consultant shall prepare a meeting summary and provide a copy to the Liaison Engineer within one week. Provided all issues brought forward at the Type Selection Meeting are satisfactorily addressed, within one week of receiving the meeting summary, the Liaison Engineer will provide written approval or denial of the proposed structure type.

Within two weeks after receiving written approval of the structure type, the consultant shall furnish OSFP with 40 reduced copies of the updated General Plan.

### D. FOUNDATION REPORTS

Foundation Investigations and Reports are required for all structures when new, retrofit, or modifications to existing structures are proposed.

The Foundation Investigation and Report must be conducted and prepared by a qualified Registered Professional Civil Engineer or a Certified Engineering Geologist who shall specialize in foundation engineering. The geotechnical professional shall include his/her State of California registration seal, license number, expiration date and signature on all submittals of Foundation Reports, addenda and/or amendments to the Foundation Report, and Log of Test Boring (LOTB) sheets.

Foundation investigations shall conform to the requirements in the *Bridge Design Specifications* and applicable Caltrans policies and procedures. The Foundation Report and LOTB sheets shall be prepared in accordance with the *Bridge Design Aids*, and the *OSFP Information and Procedures Guide*.

### E. HYDROLOGY/HYDRAULICS REPORT

A thorough hydrologic investigation and report are required for bridges over waterways and bridges that are adjacent to streams or waterways which may affect the structure design or construction. The report shall be prepared by a qualified Civil Engineer who is registered in the State of California, and shall bear the State of California Registered Professional Engineer registration seal with the signature, license number, and registration certificate expiration date of the Engineer responsible for the preparation of the report.

The report shall be prepared in accordance with the *Bridge Design Specifications* and applicable Caltrans policies and procedures.

## **F. SPECIAL PROVISIONS**

The consultant shall prepare project specific Structure Special Provisions in accordance with the *Plans, Specification and Estimates Guide*. The Structure Special Provisions shall bear the State of California Registered Professional Engineer registration seal with the signature, license number and registration certificate expiration date of the Engineer who prepared the Special Provisions or the Engineer under whose direction they were prepared.

A list of contract items with item descriptions, item numbers, units of pay, and item pay codes, but without quantities or estimated unit costs, shall be included in the front of the Special Provisions.

## **G. ESTIMATES**

The consultant shall prepare quantity calculations and develop unit costs for items that are applicable to this project and shall prepare the bridge cost estimate, utilizing the Caltrans Quantity Summary and Estimate Forms.

Quantities for all contract items, including cost of lump sum items, shall be substantiated by calculations. Quantity calculations shall be neat and orderly and shall show all sketches, diagrams and dimensions necessary to allow them to be independently used by field engineers. All quantity calculations shall be independently checked and substantiated with independent calculations.

## **H. CONSULTANT QUALITY CONTROL PLAN**

The consultant shall have a quality control plan in effect during the entire time work is performed under this contract. The quality control plan shall establish a process whereby calculations are independently checked, corrected and back checked, and all job related correspondence and memoranda are routed and received by affected persons and then bound in appropriate job files.

Where several drawings show different work in the same area, means shall be provided to assure that conflicts do not exist. All plans, specifications, calculations, reports, and other items or documents submitted to Caltrans shall be marked clearly as being fully checked, and the preparation of the material followed the quality control plan established for the work.

The Quality Control (QC) Plan shall contain provisions for the development of appropriate "check lists" to assure product quality and control. These "check lists" shall be delivered to the Caltrans with the QC Plan and updated as required.

## **II. COORDINATION**

The Design consultant shall coordinate with other involved agencies for compatible design and phasing of construction with existing or planned conditions. Cooperation and close coordination with Caltrans will be required.

Coordination may include but will not necessarily be limited to:

- Department of Fish and Game
- Department of Parks and Recreation
- Bureau of Land Management
- National Forest Service
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- Local Agencies
- California Coastal Commission
- Railroad Agencies
- Utility Companies

## **III. PERMITS**

The consultant shall secure all necessary permits.

The consultant shall provide to Caltrans, in signature ready form, applications for necessary U.S. Coast Guard Permits, Coastal Commission Permits, and 404 Permits with the U.S. Army Corps of Engineers and State Reclamation Board Permits.

Permit applications shall include all attachments and exhibits.

The consultant shall fulfill all applicable conditions identified in the permits.

## **IV. RAILROAD AGREEMENTS**

The consultant shall secure from the railroad all required Construction and Maintenance (C&M) Agreements, Service Contracts, and Indentures or Easements; and shall:

- Ensure that C&M Agreement, Service Contracts, Indentures or Easements comply with State and Federal statutes, regulations, general order, procedures and rules, and with the Federal Highway Planning manuals, and that compliance with previous State, Federal and Railroad obligations or agreements is maintained.

- Secure all necessary State, Federal and Railroad approvals prior to preparing documents in the final form.
- Define and make construction provisions for removal or temporary relocation and restoration of all railroad lessee's facilities, which interfere or may interfere with construction contractor's work.
- Arrange for temporary Right of Entry and access on the railroad's property as necessary for construction; obtain all necessary railroad approval of plans and specifications.
- Arrange for all required agreements and easements to be fully executed by Caltrans and Railroad.
- Prepare application to the Public Utilities Commission (PUC) authority for construction of the project. The PUC application shall comply with PUC statutes, rules and general orders.
- Provide documents, testimony at public hearings, and presentations to PUC, as necessary.
- Obtain all written railroad concurrence with the PUC application;
- Present to Caltrans and sponsoring agency the PUC application in signature ready form.

## V. CONSTRUCTION CONTRACT ADVERTISE & AWARD

The consultant shall provide technical input, revised details, and revised specifications to support the advertising agency in resolving plans and specification issues that are raised from bidder inquiries. Proposed addenda resulting in modifications to the structures' plans and/or specifications shall be submitted to the OSFP Liaison Engineer for review and approval.

When construction contracts are advertised by Caltrans, the consultant shall refer all bidder inquiries directly to Caltrans as the first step in the resolution process. Caltrans will coordinate the resolution of the inquiry with the consultant, if necessary.

## VI. CONSTRUCTION SUPPORT

During the construction phase of the project the consultant shall:

- Attend the pre-construction meeting with the successful construction contractor if requested.
- Be available to visit the job-site for review of construction and make other visits to the job-site as requested to resolve any discrepancies in the contract documents.



- Assist with the interpretation of the contract documents and furnish all necessary drawings for corrections and change orders as required to complete the project. The original tracings of the drawings and wording of contract change orders shall be submitted to Caltrans for review and approval.
- Complete contract change order reviews within 2 working days of receipt.
- Review all submittals and shop plan drawings submitted by the construction contractor within two weeks of receipt.
- Prepare and deliver to Caltrans the As-Built plans within 4 weeks of receiving the original tracings and As-Built redline corrections. The Structure As-Built plans and As-Built corrections shall be delivered to the Caltrans OSFP in Sacramento.

## **VII. DELIVERABLES**

The consultant shall prepare and deliver studies, reports, plans, specifications, estimates and other documents to Caltrans, Division of Engineering Services (DES), Office of Special Funded Projects (OSFP).

**THIS TEXT BOX IS FOR NOTICE TO THE SPONSORING AGENCY AND IS TO BE DELETED FROM THE CONTRACT STATEMENT OF WORK.**

This Statement of Work for Structures does not address special designs such as pumping plants, buildings, or tunnels with ventilation systems. These elements of a project will require additional lead time and deliverable items. The Liaison Engineer should be contacted for the appropriate wording to include in the Statement of Work for the specific project.

The number of copies of the various documents indicated are minimums for typical projects with concrete bridges or structures. Additional copies will be required for projects with pumping plants, steel or railroad structures, or those involving distribution to districts, the Federal Highway Administration, other entities, DES Technical Committees or Specialists, or other DES functional units. The exact number of copies to be shown should be determined by coordination with the OSFP Liaison Engineer and would be a normal review item for the draft project specific Statement of Work for the contract.

### **A. TYPE SELECTION**

Pre-Type Selection (number of copies is for each bridge)

- 2 copies of draft Bridge Site Data Submittal form and attachments
- 2 copies of Foundation Boring Plan
- 2 copies of Hydrology / Hydraulics Report

### Type Selection

- 14 copies of Type Selection Report
- 1 copy of approved Bridge Site Data Submittal form and attachments
- 1 electronic copy of the General Plan
- 2 copies of draft Foundation Plan
- 2 copies of Final Hydraulics Report
- 4 copies of Preliminary Foundation Report

### Post-Type Selection

- 2 copies of Type Selection Meeting Summary
- 2 copies of updated General Plan Estimate
- 40 copies of Approved General Plan

## B. UNCHECKED DETAILS SUBMITTAL

- 6 copies of unchecked structure plans
- 1 electronic copy of the unchecked structure plans (.dgn and .par files)
- 4 copies of draft Final Foundation Report
- 4 copies of draft road plans

OSFP will review and comment on the unchecked structure plans within 3 weeks of receipt.

## C. INITIAL PS&E SUBMITTAL

- 13 sets of prints of checked, signed structure plans
- 1 electronic copy of checked, signed structure plans (.dgn and .par files)
- 1 copy of design calculations
- 1 copy of design check calculations
- 6 copies of edited Structure Special Provisions
- 1 copy of edited Structure Special Provisions on a microcomputer disk
- 3 copy of Memo to Specification Engineer/Estimator
- 2 copies of cost estimate
- 2 copies of original and checked quantity calculations with summary sheets
- 2 copies working day schedules
- 4 copies of Final Hydrology / Hydraulics Report
- 5 copies of Final Foundation Report
- 3 copies of complete Road Plans



- 5 copies Roadway Special Provisions (electronic)
- 1 copy of the consultant Quality Control Checklist

OSFP will review and comment on the Initial PS&E Submittal within 6 weeks of receipt of the complete package.

### D. INTERMEDIATE PS&E SUBMITTALS

Same as the Initial PS&E Submittal or as otherwise requested by OSFP.  
OSFP will review and comment on Intermediate PS&E submittals within 4 weeks of receipt of the complete package.

### E. FINAL PS&E SUBMITTAL

- 6 sets of prints of final structure plans
- 1 copy Signed Structure Plans (electronic file)
- 1 set of full size reproducible of final structure plans
- 1 copy of Road Plans (paper)
- 1 copy of Roadway Special Provisions (electronic)
- 2 copies of Resident Engineer's Pending File
- 1 full scale reproducible of 1:50 Deck Contour Plot
- 2 full scale prints of 1:50 Deck Contour Plot

### F. CONTRACT DOCUMENTS (required for non-State advertised projects only)

- 10 sets of plans
- 10 sets of Special Provisions

## VIII. STRUCTURE MILESTONES

The sponsoring agency should incorporate the following Structure Milestones into the Contract Milestone Schedule. The review durations previously stated should be incorporated into the project schedule.

| Milestone                   | Date  |
|-----------------------------|-------|
| Type Selection              | _____ |
| Unchecked Details           | _____ |
| Initial Structure PS&E      | _____ |
| Intermediate Structure PS&E | _____ |
| Final Structure PS&E        | _____ |